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Extension Gardener provides timely, research-based horticultural information. We publish four issues per year. Send comments about *Extension Gardener* to:

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Holiday Cacti: Beautiful, but now what?

Thanksgiving cactus (*Schlumbergera truncata*) and Christmas cactus (*Schlumbergera bridgesii*) are popular houseplant mainstays in stores during the holidays because their beautiful blooms are show stoppers during the cold, dark months of winter. Native to Brazil, these plants come in a wide range of colors, including red, pink, purple, lavender, peach, orange, cream, and white. They are short-day plants, meaning that they initiate flower bud development when the nights get longer. When these plants are grown under normal light conditions, the Thanksgiving cactus blooms around late November and the Christmas cactus blooms around late December—hence their common names.

How do you tell the difference between a Thanksgiving and a Christmas cactus? First, take a look at the leaves, which are more properly termed “phylloclades.” The “leaves” are actually flattened stem segments. On a Thanksgiving cactus, the phylloclades will have two to four saw-toothed projections along the margins that will be more pointed than those on a Christmas cactus, which has more rounded projections.

You can also look at the color of the anthers in the flowers. On a Thanksgiving cactus the anthers will be yellow, and on a Christmas cactus they will be purplish-brown.

Maybe you picked up a holiday cacti while shopping one day, or maybe someone gifted one to you. And now that the show of flowers is over, you're wondering just how to care for your new plant. The key factors are providing the right amount of sunlight, the perfect growing media,



Notice the pointed tips of the phylloclades on this Thanksgiving cactus. ©Maja Dumat, CC BY 2.0, flickr.com



Christmas cactus phylloclades have rounded tips. @louirc, CC BY 2.0, flickr.com

and some water and fertilizer, and you'll have your holiday cactus around for several years to come.

For both Thanksgiving and Christmas cacti, light shade is ideal. Full sun is beneficial for a magnificent flowering display when flower buds are forming and during flowering, but full sun during the summer can cause the leaves to look dull and yellow. These plants actually like to be a little pot-bound, so repotting should be done only once every three years or so and should occur in the spring after flowering. Good drainage and soil aeration are also critical, so aim for a mix that contains about 60 to 80 percent potting soil with about 20 to 40 percent perlite.

Holiday cacti tolerate dry, slightly underwatered conditions, especially during the spring and summer. A good rule of thumb is to water when the growing medium feels dry to the touch but not fully dry throughout. A balanced 20-10-20 or 10-10-10 fertilizer can be applied at one-half strength once monthly from late winter through the summer. During the late summer, stop fertilization for greater flower bud production.

Extension Showcase

STEM in the garden

Across North Carolina, parents and teachers alike are seeking ways of incorporating STEM (Science, Technology, Engineering, Math) concepts into their activities.

This summer, Wilson County Cooperative Extension offered Project PLANTS (Planting Leaders in Agriculture and Nature Through Science) in partnership with 4-H Summer Fun to provide hands-on lessons, activities, and learning focused on STEM concepts. To explore wetland environments, alternative energy, and hydroponics, we worked in various areas of the Wilson Botanical Gardens, including the bog, arboretum, STEM gardens, and wooded portions of the Children's Garden.

After each of the three 3-hour day camps, students were evaluated for lesson comprehension.

Across all days, approximately seventy-five percent of students left with a stronger knowledge of wetland ecosystems, water pollution, alternative energies and their uses, and the comparison of traditional and alternative farming methods. If you would like to learn about upcoming events and learning opportunities, visit wilsonbotanicalgardens.com.

—Cyndi Lauderdale and Selena McKoy

Hands-on science at the Wilson Botanical Garden. ©Cyndi Lauderdale



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Smart Gardening: Gardening by mail

With thousands of online and printed catalog sources, gardening by mail is a growing trend. January and February are prime months for ordering plants, and doing so can provide gardeners with unique merchandise not available elsewhere. As with any retail shopping experience, however, gardeners should keep the following tips in mind. Colorful and polished photos can be deceiving. Images are often enhanced to exaggerate the size or shade of a flower and may not reflect the true characteristics of the plant. Try to compare descriptions to a research-based resource like the **NC State Extension Plant Database: plants.ces.ncsu.edu**.

Buyers should watch out for bargain prices and scams. Remember, if it sounds too good to be true, it probably is. Make sure the plant is suitable for the climate zone in which you live. Most of North Carolina is in USDA Zones 6 through 8. Ensure that the delivery time matches optimal planting dates. Reputable companies will often limit shipping dates to certain seasons or weeks of the year.

When ordering, beware of companies with only a post office box mailing address and no customer service phone number. Contact the company if there are questions or concerns about the ordering process. Some mail-order companies may substitute a similar item for one that is sold out. Look on the order form for options and indicate your preference. Keep a record of purchases. Make copies of all order forms. And if ordering by phone, request an order number. This will help facilitate any communications with the company. Last, make sure to understand a company's guarantee policy. For most retailers there is a cut-off date by which a company must be notified of problems. It is essential to inspect plant material when it is received. Be ready to hold the company to what it has promised if the plants are unsatisfactory.

—Katy Shook



Winter is prime time for browsing catalogs and ordering plants. ©Katy Shook

Food Production: Start your garden early with a cold frame



A cold frame of PVC pipe and plastic warms the soil and protects plants. ©Shawn Banks

It's the middle of winter, and I already want to start working in the garden—mostly so I can get out of the house and back into nature. But most garden vegetables won't grow in the middle of winter. My solution is to build a cold frame. This easy-to-make structure offers about 5°F of overnight cold protection and allows the soil to warm up much earlier for seed starting. A simple cold frame can be made using 10-foot lengths of half-inch PVC pipe, large clips (such as binder clips or clothespins), some string, and a 10-foot wide sheet of plastic.

Over a 4-foot-wide bed, push one end of a PVC pipe into the ground 6 to 8 inches deep, bend it over the bed, and push it into the soil to about the same depth on the other side. Repeat this step about every 2 feet for the length of the bed, forming 'ribs' over the bed. For an 8-foot-long bed, you will need five ribs. A 'spine' tied to each rib will prevent the ribs from moving around when the plastic is draped over the frame. The spine can be another piece of half-inch PVC pipe cut to the length of the bed. Use string to tie the spine under the ribs so it will not rub against the plastic cover. The ribs should stand about 4 feet high in the center of the bed. Assuming an 8-foot-long bed, cut the plastic 16 feet long ($8+4+4 = 16$) and 10 feet wide. Drape the plastic over the frame. Pull the sides together on each end using the clips to secure the plastic around the bed. Open the ends on warm days so the garden doesn't get too hot inside.

—Shawn Banks

Pest Alert: Don't move firewood

People often transport firewood for use during outdoor recreation. As the temperature drops and the days get shorter, these activities increase as more people head out to their favorite camping destinations. The abundance of wood left on the ground after recent storms makes it tempting to use the wood for firewood. This is not a good idea, unless you plan to use it close to home.

Our forests are under attack by non-native insects and diseases that can eliminate entire species of forest trees. Recently introduced insects and disease organisms—such as emerald ash borer, Asian longhorned beetle, and laurel wilt—are wood-infesting species that can and are being transported long distances in firewood. Other non-native pests, such as hemlock woolly adelgid, gypsy moth, thousand-cankers disease, and sudden oak death, may also be moved to new areas in firewood. Once transported into new areas, these pests can become quickly established and kill local trees. On their own, insects and disease organisms move quite slowly. When people move firewood, however, these destructive pests can move hundreds of miles in a short period of time.

A good rule of thumb is to always use local firewood from the closest convenient source. Never move firewood more than 50 miles. Moving it 10 miles or less is best. The safest option is to use firewood from the location where you plan to burn the wood. Most state parks and many convenience stores sell USDA—APHIS or state-based heat-treated wood that is certified safe to move. The use of local firewood is an important factor in preventing the spread of potentially devastating invasive species to our state's forests. Please keep this in mind as you prepare for your outdoor recreation activities: the health of our forests depends on it!

—Tim Mathews



Use local firewood to avoid transporting invasive insects and disease organisms.
©Tim Mathews

Lawns: Winter tips for warm-season lawns

Now that your lawn mower is stored away for the winter, you can use the extra time to improve your lawn for next season.

Assess turf quality. Search for problem areas where the turf is not growing as well and try to determine the limiting factor. Was it compaction? Plan to aerate next spring. Was the soil too dry? Consider installing an irrigation system. Do the grass blades look torn instead of cut? Sharpen or replace your lawn mower blades to reduce stress.

Evaluate soil fertility. Have your soil tested by **NC Department of Agriculture and Consumer Services** to achieve accurate lime and fertilizer recommendations. Apply the recommended amount of lime once you receive the soil test results to ensure soil acidity is adjusted by the next growing season.

Identify cool-season weeds early. A pre-emergent herbicide application in the fall is important for controlling common cool-season weeds, including annual bluegrass, chickweed, cudweed, and henbit. However, there are problematic weeds such as wild garlic that can only be controlled with a postemergent herbicide application. Ask your Extension center for recommendations on products, timing, and rates.

Minimize winter injury. Shorter days, lower sun angles, colder temperatures, and dramatic temperature swings are factors that contribute to winter injury. Mow the lawn higher than normal in the fall to help provide added protection. Turf grown in part shade is more prone to winter injury. Manage the size of evergreen shrubs to avoid casting large, dense patches of shade on the turf. Consider removing branches that cast heavy shade, but do not sacrifice the integrity of the tree.

Avoid fertilizing your lawn until May. Encouraging new growth with fertilizers in winter increases the likelihood of cold weather injury. Be patient with your first fertilizer application next year.

—Jason Weathington

Tips & Tasks

Ornamentals with winter interest

The dormancy of winter brings the challenge of maintaining a lively garden. Creating a landscape that highlights aesthetic features of plants during the winter takes hard work and knowledge of a plant's characteristics. Check out these plant specimens and their key winter features.

A member of the daphne family, ***Edgeworthia chrysantha*** provides golden-yellow blooms and fragrance to a winter landscape. Blooms begin in December and continue through the winter. Dozens of florets create beautiful and fragrant flower clusters that are elegantly placed across the plant. *Edgeworthia* will reach a mature size of 8 feet wide by 10 feet high and thrives in partial shade.

The contorted form of the common hazel, ***Corylus avellana*** 'Contorta', makes this tree a standout in the winter landscape. Once the foliage drops in the fall, the corkscrew hazel reveals twisted and spiraled branches and twigs. Winter flowers will complement the contorted branches nicely. Corkscrew hazel is a deciduous, rounded, multi-trunked shrub which typically grows 8 to 10 feet tall. This plant can be considered low maintenance in the garden and is best suited to full sun to partial shade.

—Eric Derstine

Edgeworthia chrysantha. ©Lenora (Ellie) Enking, flickr.com, CC BY-SA 2.0



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Helping You Grow

Choosing native plants

Native plants make an excellent addition to any garden. Planting natives attracts pollinators, birds, and butterflies to your yard. This diversity can improve vegetable harvests and offer fun opportunities to observe the natural world in your own backyard. Plus native plants are well-adapted to your local climate, allowing them to thrive in the garden.

As you plan your garden for the upcoming season, consider adding more native plants to your landscape. One great place to start is the “Native Plants” chapter in the *NC Extension Gardener Handbook*. This chapter is accessible at content.ces.ncsu.edu/12-native-plants.

You can also search for native plants that will thrive in your zip code on the Audubon Society’s website: www.audubon.org/native-plants. The site will help to create a list of plants for you, and you can get additional tips on creating a bird-friendly habitat.

If you’re looking for even more information about native plants, visit gardening.ces.ncsu.edu/native-plant-resources.

—Leslie Peck

Joe-pye weed. ©Leslie Peck



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Plant Watch: American holly (*Ilex opaca*)



American holly has spiny leaves and red berries. ©BlueRidgeKitties, CC BY-NC-SA 2.0, flickr.com

The American holly is a beautiful native evergreen tree. In home landscapes, with limited area for growth, trees typically reach up to 30 feet high. Hollies are dioecious, meaning male and female flowers are on separate trees. Both trees are needed to have fruit on the female. Often American holly is used as greenery for Christmas decorations, as in “Deck the Halls with Boughs of Holly.” American holly prefers well-drained, slightly acidic soil, but will not tolerate consistently wet soils. If the soil pH is too high, chlorosis will occur, with some leaf drop associated with this problem. The American holly is the only native holly with spiny leaves and red berries. The tree’s appearance is improved by letting limbs grow all the way to the ground, allowing this holly to be used for privacy screens and specimen plantings.

—Shannon Newton

Incredible Edibles: Pansies aren’t just for looks

Most vegetable gardens are laid to rest for the winter. But never fear, you probably have something tasty planted right outside your front door! Pansies are winter annuals that are edible and have a slightly sweet, floral flavor. Although their flavor is mild, pansies are great for candying or eating whole on crackers with cream cheese. And pansies are a great way to add beautiful color to salads and desserts such as cakes and pastries. To harvest, pick flowers in the morning, after dew has evaporated, and keep them cool after harvest to maintain freshness. Before eating any flowers, make sure you have properly identified them, and only eat flowers that you know haven’t been treated with pesticides. You can learn more about edible flowers and how to use them from this NC State Extension publication: *Choosing and Using Edible Flowers* (AG-790).

—Hanna Smith



Pansies have a sweet floral flavor. ©Heather Acton, CC BY-NC-ND 2.0

Sustainability: Keep it real!

Labor Day rolls around, and plastic Christmas tree-shaped decorations begin to appear in stores. Many consumers are tempted to purchase these plastic objects instead of a “real Christmas tree.” Some might not want a real tree because it has to be cut each year, which doesn’t seem sustainable. There is no need to worry. When a Christmas tree is harvested, the grower replants a tree to take its place. During the many years a tree grows to become the centerpiece of holiday celebrations, it is also serving as habitat for deer, bear, rabbits, and birds, including grouse and wild turkeys. The fake plastic tree is manufactured in an Asian country from nonrenewable petroleum. Meanwhile, the real Christmas trees are growing on American-owned family farms across North Carolina. Growing Christmas trees as a crop ensures that land owned by many families for generations will remain family farms, providing jobs and bringing income into the local economy.

Now that you feel good about purchasing a real tree, the next thing that might concern you is disposing of it after Christmas. Never fear. There are many free opportunities to have your real tree recycled. Most trees are chipped up into mulch, which will break down and help another plant grow. The fake tree will lose its ornamental value quickly, then be tossed into a landfill where it will remain for eternity. Make the sustainable choice this year by “keeping it real.”

—Paige Patterson